

Docket No.: 50253-148 (P1623C)

GP 2774
PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

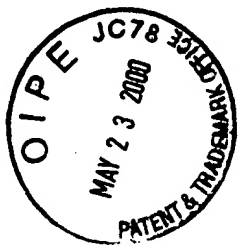
In re Application of

Bruce TOGNAZZINI

Serial No.: 09/153,230

Filed: September 15, 1998

For: LINEAR TOUCH INPUT DEVICE



Group Art Unit: 2774

Examiner: X. Wu

TRANSMITTAL OF APPEAL BRIEF

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Submitted herewith in triplicate is Appellant(s) Appeal Brief in support of the Notice of Appeal filed March 23, 2000. Please charge the Appeal Brief fee of \$300.00 to Deposit Account 500417.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY

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APPEAL BRIEF

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed March 23, 2000 in response to the final Office Action dated December 23, 1999.

REAL PARTY IN INTEREST

The real party in interest is SUN MICROSYSTEMS INC. of Mountain View, California.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that will affect or be affected by the decision in this case.

STATUS OF CLAIMS

Claims 1-2, 4-17 and 22-42 remain in the application. Claims 1-2, 4-17 and 22-42 stand rejected. The independent claims are 1, 7, 22 and 29.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to the last Office Action.

SUMMARY OF INVENTION

Computers are applied to perform many functions, from processing information to operating machinery. Many applications require a user of the computer to indicate the user's intention by inputting information. Even though speech recognition is becoming more available, still most input involving words or commands are indicated to a computer via a keyboard on which a user types a sequence of characters to indicate a command or data. Graphical user interfaces (GUIs) have been used to input commands and choices among a limited set of choices, by representing such inputs with graphical objects (such as icons, buttons and menu items) and having the user select one by moving a cursor across the two dimensional screen. The cursor is moved by a continuous input device, such as a pointing device like a mouse, in which a range of device positions translates to a range of cursor positions. If the graphical objects are arranged in the two dimensions of the screen, only two dimensions indicated by the continuous input device are utilized. If the objects are arranged conceptually in three dimensions, e.g. as game pieces in a three dimensional game, then the objects' representations on the two dimensional screen are typically accomplished as a perspective rendering of the objects to give the appearance of being arranged in a virtual three dimensional space. In this case three dimensional movement of the continuous input device may be employed to move the cursor.

Unfortunately not every user is adept at positioning a pointing device in two or three dimensions simultaneously. Hand steadiness variations among healthy people, disease, or physical impairment may prevent some users from exercising the physical control of the pointing device to successfully manipulate the graphical objects.

Even for those users with steady hands and fine motor control, switching from keyboard for textual data input to a pointing device requires inefficient movement of one or both hands from the keyboard to the pointing device and back to the keyboard. In addition, a person typically has finer control of a dominant hand than of a second hand, so that the dominant hand performs all the operations involving the pointing device while the second hand is underutilized.

The techniques disclosed in the present application provide for increased control on a continuous input device by providing for separate continuous input for each dimension. In some embodiments, continuous input in one dimension is effected by the location along a strip where pressure is applied. Other sensors known in the art can be used to detect location where a user touches the strip, such as conductivity or temperature, to provide the continuous input. The strip can be straight or curved. In these embodiments, only movement in the along-strip direction effects a change in continuous input; perpendicular movement, i.e., cross-strip movement or widthwise location, is ignored. Preferably, the strips are on a keyboard and are approximately as wide (in the cross-strip direction) as a human finger. Ignoring cross-strip movement or location effectively isolates the movement of the responding cursor in one dimension from movement of the cursor in another dimension, and consequently requires less fine motor skill by the user to position the cursor.

In some embodiments, continuous input in one dimension is effected by the amount of pressure applied to the indicator, rather than by the position where the strip is touched. This is especially useful in indicating movement in a third dimension where, for example, the first two dimensions respond to the position of a user's two thumbs on two respective strips on a keyboard, or to the position of a user's dominant hand holding a conventional mouse on a flat surface.

According to the present invention, the dimension controlled by the continuous input device need not even be a spatial dimension, but can be some other property of the computer application that must be controlled continuously over a range of values, e.g. speed of scrolling text, volume of emitted sound, scaling the size of a graphic object, etc., even the granularity of location change detection of another strip. In the specification, the continuous input device for a single dimension according to the invention is called a linear touch input device.

ISSUES

The issues on appeal are:

Whether the Examiner erred in rejecting claims 37 and 40-41 under the judicially created doctrine of double patenting over claims 1-3 of U.S. Patent 5,859,629 ('629 patent).

Whether the Examiner erred in rejecting claims 1-2, 4-5, 7-11, 35-36 and 38-39 under 35 U.S.C. §102(b) as being anticipated by Kawamoto, U.S. Patent 5,365,254 (Kawamoto).

Whether the Examiner erred in rejecting claims 6, 12-17, 22-26, 28-33 and 42 under 35 U.S.C. §103(a) as being unpatentable over Kawamoto in view of Bequaert et al., U.S. Patent 4,042,777 (Bequaert).

Whether the Examiner erred in rejecting claims 27 and 34 under 35 U.S.C. §103(a) as being unpatentable over Kawamoto in view of Bequaert and further in view of Smith et al., U.S. Patent 5,111,005 (Smith).

GROUPING OF CLAIMS

All claims are argued separately, and each claim stands or falls independently of any other claim; except, claims 2 and 4 stand or fall with claim 1, claim 15 stands or falls with claim 12, claim 23 stands or falls with claim 22, and claim 30 stands or falls with claim 29.

THE ARGUMENT

The Examiner erred in rejecting claims 37 and 40-41 under the judicially created doctrine of double patenting over claims 1-3 of U.S. Patent 5,859,629.

The Office Action asserts "the subject matter claimed in the instant application . . . is covered by the patent." The final Office action also asserts that "there is no apparent reason why Appellant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent" citing *In re Schneller*, 397 f.2d 350 (CCPA 1968),

Appellant respectfully submits that this type of rejection is improper in the present application. In particular, the claims in the '629 patent are to a method, while the rejected claims in this application are to an apparatus (claim 37 is to a "keyboard" and claims 40-41 are to "an input device"). It is submitted that the subject matter in the claims differ from the subject matter claimed in the '629 patent in a non-obvious manner.

Claim 37 depends on claim 11 which depends on claim 10 which depends on claim 7. There are limitations in claim 37 not suggested by the claims 1-3 of the patent. For example, the limitations of claim 37 include specifying a position for the linear input device e.g. "located adjacent to [an] edge on said top face [of a housing supporting a plurality of keys]" from claim 7. Also claim 37 includes specifying a width of the touch strip "approximately the width of a human finger" from claim 10, which is not suggested by the claims of the patent. Furthermore, claim 37 requires that the "data signal also indicates the selection of one or more . . . keys or buttons" from claim 11, rather than changing the meaning of the data signal as recited by the patent claims. Appellants respectfully submit at least one of these limitations is not suggested by the claims 1-3 of the patent and therefore the patent claims do not render claim 37 obvious.

Claims 40 and 41 depend on claim 38 which depends on claim 1. Some elements of claim 40 and 41 render the subject matter of the claims as a whole non-obvious over the '629 patent claims. For example, claims 40 and 41 include "a second strip" from claim 38. Such a second strip is not suggested by the patent claims and is not necessary to perform the steps of the '629 patent claims. Thus the '629 patent claims do not suggest or render obvious claims 40 or 41.

In addition, claim 40 recites "one of said first and second touch sensitive input strips controls granularity of the other" which is not suggested by the '629 patent claims. The '629 patent claims depend on patent claim 1 which recites that "selection of . . . keys modifies a granularity of movement." Thus patent claim 1 teaches away from using a second strip to control granularity, and therefore does not render the limitations of claim 40 obvious.

For the reasons given, it is submitted that the Examiner's rejection of claims 37 and 40-41 under the judicially created doctrine of double patenting over claims 1-3 of U.S. Patent 5,859,629 is improper. Accordingly, Appellants respectfully request reversal of the rejection.

The Examiner erred in rejecting claims 1-2, 4-5, 7-11, 35-36 and 38-39 under 35 U.S.C. §102(b) as being anticipated by Kawamoto.

As explained above, Appellant's invention is directed to an input device such as a keyboard that has a "touch input device providing input information corresponding to position and pressure (specification, page 1, lines 3-4). In the preferred embodiment, the touch input "is comprised of a strip of pressure sensitive material . . . to detect contact in only one direction," (specification, page 2 line 22 to page 3 line 1).

In contrast, Kawamoto is directed to a graph display system. Kawamoto teaches a touch area on a display to indicate the position along an X axis where a trendgraph is centered. The item cited by the Examiner is the touch area 13. Kawamoto teaches that "in a display screen 10 is a touch area 13 and the X coordinate of the touch position is detected" (Kawamoto, column 2, lines 52-54).

Appellant respectfully submits that Kawamoto teaches detecting position but does not teach or suggest measuring the levels of pressure applied by the user at the position.

Specifically, independent claim 1 recites that the device include "material sensitive to a range of pressure values" and that the device "transpose the position and pressure value of said contact into a data signal." The Examiner asserts that Kawamoto teaches the range of pressure values because Kawamoto discloses "zero pressure or pressure" (final Office Action, page 3). The Examiner then asserts "Kawamoto clearly teach that the touch area can detect the pressure applied by the user and the touch position of the touch area" (final Office Action, page 6). This is factually incorrect. Kawamoto specifically detects only the "X coordinate of the touched position" (Kawamoto, column 2, lines 53-54). This detection is a position of contact, not a level of pressure. It is not necessary that the device respond to a zero pressure and another pressure as asserted by the Examiner. It is only necessary that the device respond to any pressure above the threshold pressure and have no response otherwise. For

example, if the threshold pressure is 1 dyne per square centimeter (dynes/cm²) then the sensor responds at 5 dynes/cm² and 10 dynes/cm² but not at 0.5 dynes/cm² or 0.1 dynes/cm². A response may be uniform above the threshold and thus not indicate the actual pressure or multiple pressure values. Multiple levels of pressure, i.e. "a range of pressure values," are not taught or required by Kawamoto.

Furthermore, Kawamoto does not teach sending to the computer a signal responsive to both "position and pressure value" as required by claim 1. Only the position is sent. Position and pressure are two different elements in claim 1, yet Kawamoto teaches only one of them is sent to the computer, the position. It is understandable that Kawamoto does not send a pressure value with the position value because a detection is made inherently if the pressure is above a threshold, the actual pressure above the threshold is not necessarily known. Furthermore, the threshold is usually constant. If the actual pressure is not known and threshold value does not change, the pressure value associated with the position detection is not worth reporting. Furthermore, Kawamoto shows no use for the particular pressure value used to detect the position touched, even if that pressure were known and reported. Thus Kawamoto does not teach or suggest putting the pressure value into the data signal sent to the computer.

Because Kawamoto does not teach or suggest a significant limitation of claim 1, the limitation being at least one of "a range of pressure values" or "position and pressure value . . . into a data signal," the rejection of claim 1 under 35 U.S.C. §102(b) is improper. For at least the same reasons, the rejection is improper for claims 2 and 4-5 and 38-42 which depend, directly or indirectly, on claim 1.

In addition, claim 5 recites "said input device further comprises a number of keys or buttons" which are not shown by Kawamoto. Kawamoto's input device consists of screen areas on a touch screen. Therefore all input in the Kawamoto device is on touch sensitive material rather than on keys or buttons. The examiner cites items 14, 16 and 17 as keys or buttons, but these elements refer to

"touch screen keys" which are not the same as the keys or buttons of claim 5. The claim states that the keys are in addition to the touch sensitive strips, and the specification makes clear the keys or buttons are keys or buttons on a keyboard (specification, page 7, lines 5-6), which one of ordinary skill in the art would understand are mechanical keys, not touch sensitive material. Claim 6 depends on claim 5 and is allowable for at least the same reasons.

In addition, claim 38 recites "a second strip of touch sensitive material" which is not shown by Kawamoto.

In addition, claim 39 recites "first and second strips . . . in combination control two-dimensional input" which is not shown by Kawamoto. Kawamoto only teaches touch sensitive areas to input one dimension, the "axis" (Kawamoto, column 2, lines 14-15).

Independent keyboard claim 7 recites "a keyboard," and "a strip of touch sensitive material" on "a housing supporting a plurality of keys" which are not shown by Kawamoto because Kawamoto has touch sensitive material on a graphical display screen which is not a keyboard. In the context of the specification, keys or buttons on a keyboard are different from touch sensitive material. Thus Kawamoto does not teach that the touch sensitive material is on a keyboard at all, as required by claim 7. In addition, claim 7 describes where on the keyboard the touch sensitive strip is located. Because Kawamoto does not teach a touch sensitive strip on a keyboard, it can not teach where on the keyboard to place the touch sensitive strip.

Furthermore, Kawamoto does not suggest that the touch area may be moved to a keyboard. To modify Kawamoto to place the touch sensitive area on a keyboard would change the principle of operation of Kawamoto. This is because Kawamoto associates a position of the X-axis on the displayed graph with the part of the touch area that is touched. As stated in Kawamoto, "Touch area 13 consists of 15 touch zones along axis X." Since axis X is on the display, the touch zones must be on or

adjacent to the display. The touch zones can not be placed along the axis X if the touch zones and touch area are on a keyboard instead of on the display. Also, Kawamoto states, "[i]nitially, cursor 12 is displayed at the top of the display area 11 . . . [and] can be moved to a touch zone by touching touch area 13," (Kawamoto, column 2, lines 63-66). A cursor on a display can not be moved to a touch zone that is on a keyboard. Therefore Kawamoto does not teach or suggest a touch area on a keyboard.

The Examiner asserts that "the cursor control device is not necessary located adjacent to display" (final Office Action, page 6). This is irrelevant. The claims don't recite a cursor control but a touch sensitive strip. Kawamoto requires the touch zone to be on the display for the reasons given above and indicates the touch zone also controls a cursor movement. The fact that a different cursor control is not on the display is not relevant to the claim. As Kawamoto does not disclose a touch sensitive material on a keyboard, the requirements for anticipation under 35 U.S.C. §102 have not been met.

With respect to 35 U.S.C. §103, a modification of the reference to comport with the claim requirements would not have been obvious. To move the touch zone off the display as suggested by the Examiner would change the principle of operation of the Kawamoto invention in a manner unintended by the reference disclosure.

Because Kawamoto does not teach or suggest a strip of touch sensitive material on a keyboard, the rejection for anticipation under 35 U.S.C. §102(b) is improper. For at least the same reasons the rejection is improper for claims 8-17 and 35-37 which depend, directly or indirectly, on claim 7.

In addition, claim 8 recites "signal does not indicate the widthwise position of said contact" which is not shown by the reference because the reference does not show a signal from a keyboard, but only a signal from a touch screen display.

In addition, claim 9 recites "said data signal indicates the pressure of said contact" which is not shown by Kawamoto. Kawamoto does not measure the pressure of the contact for the reasons given above, and in addition, Kawamoto does not measure contact on a keyboard in any case and so can not measure the pressure of such contact.

In addition, claim 10 recites "width is approximately the width of a human finger" which is not shown by the reference because the reference does not show a strip on a keyboard and so can not teach the width of such a strip. For at least the same reasons, the rejection is improper for claim 11 which depends on claim 10.

In addition, claim 11 recites "keys or buttons" which are not shown by Kawamoto which does not teach a keyboard with a touch sensitive strip and thus can not teach such a device also has keys or buttons.

In addition, claim 35 recites "longitudinal direction is substantially parallel to at least one . . . edge" of the keyboard which is not shown by Kawamoto. Kawamoto teaches the sensitive material is arranged along the "axis X" on the graph on the screen and teaches away from arranging the strip parallel to an edge of a keyboard.

In addition, claim 36 recites "a two dimensional input signal" which is not shown by Kawamoto which only teaches one dimension, the axis X. Also, claim 36 depends on claim 17 which recites "a second linear touch input device" which is not shown by Kawamoto which only shows one strip of pressure sensitive material.

For the reasons given, it is submitted that the Examiner's rejection of claims 1-2, 4-5, 7-11, 35-36 and 38-39 under 35 U.S.C. §102(b) as being anticipated by Kawamoto should not be sustained. Accordingly, Appellants respectfully request reversal of the rejection.

The Examiner erred in rejecting claims 6, 12-17, 22-26, 28-33 and 42 under 35 U.S.C. §103(a) as being unpatentable over Kawamoto in view of Bequaert.

As argued above, Kawamoto does not teach or suggest a data signal with both pressure and position; and Kawamoto does not teach or suggest putting a touch sensitive strip on a keyboard.

Bequaert is directed to a keyboard with keys that can be pressed simultaneously. “The operator presses several keys at once” (Bequaert, Abstract). The key combinations indicated “strings of characters,” (Bequaert, Abstract).

Appellant respectfully submits that Bequaert does not disclose or suggest a keyboard with a touch sensitive strip that detects position, or a separate measurement of the amount of pressure at the point of touch. Thus Bequaert does not cure the deficiencies of Kawamoto.

Appellant respectfully submits that the combination does not teach a touch strip with both a pressure signal and a position detector, as required by independent input device claim 1. Thus Kawamoto does not teach or suggest a substantial limitation of Appellant’s claim 1, and a rejection of claim 1 under 35 U.S.C. §103(a) would be improper.

Furthermore, the combination is not proper. Bequaert is directed to a keyboard. Kawamoto is directed to a display device that will not function if the touch area is moved to a keyboard, for the reasons given above. One of ordinary skill in the art would not be motivated to modify Kawamoto by moving the touch area to the keyboard. The suggested modification would defeat the purpose and change the principle of operation of Kawamoto, which is to display a graph with a touch zone associated directly with the X-axis of the graph on the display.

The Office Action states that “Bequaert is cited to teach the touch input device can be integrated with keyboard for inputting characters . . . so that the user can do both cursor control and inputting characters.” Such a combination is not motivated by these references, because the prior art

does not suggest the desirability of this combination. Kawamoto teaches away from moving the touch strip to a keyboard and the Office Action does not show where Bequaert suggests the thumb keys should be replaced with a touch strip for cursor control. On the contrary, the eight states of the four thumb keys of Bequaert are necessary because "the thumb keys select the alphabet/-case, output order of characters . . . a space character . . . and capitalizing" (Bequaert, Abstract). The Office Action does not show where Bequaert suggests that these necessary keys can be replaced with a cursor control of any sort. Thus the stated reason does not provide proper motivation to combine these references. It is submitted that the Examiner has applied impermissible hindsight in reconstructing references in light of the application disclosure.

Because the combination is not proper, and, in any case, does not teach both a position and a pressure as required by independent input device claim 1, for the reasons given above, a rejection of claim 1 under 35 U.S.C. §103(a) would be improper. For at least the same reasons, the rejection is improper for claims 2, 4-6 and 38-42 which depend, directly or indirectly, on claim 1.

In addition, claim 6 recites "said keys or buttons are located . . . so as to be operable by the fingers of a hand while said strip . . . is simultaneously touched by the thumb of the hand" which is not taught or suggested by the combination. Kawamoto teaches only a touch sensitive strip and Bequaert teaches only keys, so the combination does not address, and can not address, the positional relationships of keys to the touch sensitive strip. Thus the combination does not teach any arrangement of strip to keys, much less the particular arrangement required by claim 6.

In addition, claim 42 recites "key . . . activated simultaneous to activation of said first touch sensitive input strip" which is not shown by the references, alone or in combination. Kawamoto teaches only a touch sensitive strip and Bequaert teaches only keys, so the combination does not address, and can not address, the simultaneous activation of keys and the touch sensitive strip.

Because the combination is not proper, and, in any case, does not teach a keyboard with a linear touch input device as required by independent keyboard claim 7, for the reasons given above, a rejection under 35 U.S.C. §103(a) is improper. For at least the same reasons, the rejection is improper for claims 8-17 which depend, directly or indirectly, on claim 7.

In addition, claim 12 recites limitations similar to claim 6 including "said keys or buttons . . . are located . . . so as to be operable by the fingers of a hand while said strip . . . is simultaneously touched by the thumb of the hand" which is not taught or suggested by the combination for the reasons given above for claim 6. For at least the same reasons, the rejection is improper for claims 13-16 which depend directly or indirectly on claim 12.

In addition, claim 13 recites "strip . . . on the top face . . . and said touch keys or buttons are located on at least one of said left edge and said right edge" which is not shown by Kawamoto and Bequaert. This particular arrangement of keys and touch sensitive strip on the keyboard is not shown, and can not be shown, by the combination, which does not suggest putting a touch sensitive strip on a keyboard.

In addition, claim 14 recites "strip . . . on the top face . . . and said touch keys or buttons are located on the bottom face" which is not shown by Kawamoto and Bequaert. This particular arrangement of keys and touch sensitive strip on the keyboard is not shown, and can not be shown, by the combination, which does not suggest putting a touch sensitive strip on a keyboard.

In addition, claim 16 recites "strip . . . is substantially arc shaped" which is not shown by the combination. This particular arrangement of touch sensitive strip on the keyboard is not shown in either reference in the combination.

In addition, claim 17 recites "second linear touch input device . . . located at or near said right edge" which is not shown by Kawamoto and Bequaert. This particular arrangement of touch sensitive strip on the keyboard is not shown by either reference or by the combination, which does not suggest putting a touch sensitive strip on a keyboard.

Because the combination is not proper, and does not teach a "a linear touch input device . . . integrated with said keyboard" as required by independent computer system claim 22, for reasons given above, a rejection under 35 U.S.C. §103(a) is improper. For at least the same reasons, the rejection is improper for claims 23-28 which depend, directly or indirectly, on claim 22. In addition, claim 24 recites "scrolling said display in accordance with said input signal" which is not shown by either reference. Kawamoto merely positions a cursor relative to a graph with touch sensitive areas and does not scroll in response to the signal produced when the touch sensitive area is touched as required by claim 24. Bequaert does not even teach a touch sensitive strip.

In addition claim 25 recites "display of [a] text document in accordance with said . . . signal from said linear touch input device" which is not shown by the references. Kawamoto merely positions a cursor relative to a graph with touch sensitive areas and does not display a text document in response to the signal produced when the touch sensitive area is touched as required by claim 25. Bequaert does not even teach a touch sensitive strip to produce such a signal.

In addition, claim 26 recites "a pointing device" and "controls said image in accordance with said input data signal from said linear touch input device and . . . said pointing device," which is not shown by either reference or the combination.

In addition, claim 28 recites "further . . . one or more computers, each containing said linear touch input device" which is not shown by either reference or suggested by the combination.

With respect to independent claim 29, Appellant submits that the combination is not proper, and does not teach "a linear touch input device . . . integrated with said keyboard" as required by claim 29, for reasons given above. Therefore, a rejection under 35 U.S.C. §103(a) is improper. For at least the same reasons, the rejection is improper for claims 30-34 which depend, directly or indirectly, on claim 29.

In addition, claim 31 recites "controls scrolling of said display in accordance with said input signal" which is not shown by the references. As explained above, Bequaert does not even teach a touch sensitive strip, and Kawamoto merely positions a cursor relative to a graph with touch sensitive areas and does not scroll in response. For at least the same reason, the rejection is improper for claim 32 which depends on claim 31.

In addition, claim 32 recites "display of [a] text document in accordance with said . . . signal from said linear data signal" which is not shown by the references, for the reasons given above for claim 25. Bequaert does not even teach a touch sensitive strip to produce such a signal; and Kawamoto merely positions a cursor relative to a graph with touch sensitive areas and does not display a text document in response to the signal produced when the touch sensitive area is touched.

In addition claim 33 recites "a pointing device" and "controls said image in accordance with said input data signal and . . . said pointing device," which is not shown by either reference or the combination.

For the reasons given, it is submitted that the Examiner's rejection of claims 6, 12-17, 22-26, 28-33 and 42 under 35 U.S.C. §103(a) as being unpatentable over Kawamoto in view of Bequaert is untenable. Accordingly, Appellants respectfully request reversal of the rejection.

The Examiner erred in rejecting claims 27 and 34 under 35 U.S.C. §103(a) as being unpatentable over Kawamoto in view of Bequaert and further in view of Smith.

Smith is directed to a hand held digitizing pointer (a puck) having “two additional buttons 17 and 18 labeled UP and DN (abbreviation for DOWN)” (Smith, column 4, lines 38-40). Smith teaches, “when one of the added buttons 17 or 18 is pressed [, the] output . . . includes signals representing the Z-axis signals,” (Smith, column 4, lines 55-58).

Appellants respectfully submit that Smith does not teach or suggest a linear touch strip, or one integrated on a keyboard, or a linear position and pressure detector. Thus Smith does not cure the deficiencies in the other references.

Neither does Smith provide a reason to combine these references. The Office Action states it would be obvious “to have modified Kawamoto . . . with . . . multi-dimensional input . . . so that the user can use the pointing device in a three-dimensional display” (Office Action, pages 5-6). However, neither Kawamoto nor Bequaert mention a need for three dimensional pointing. Kawamoto specifically is confined to a two-dimensional graph on a two dimensional display. Bequaert does not mention graphs at all and is non-analogous art for graphing in two or three dimensions. Thus the references do not suggest the combination or the modification suggested by the Office Action, and the combination is improper.

It appears that the only reason to combine these references is to produce Appellant’s invention, which is impermissible hindsight.

Because the combination is improper and does not teach “a linear touch input device . . . integrated with said keyboard” as required by independent computer system claim 22, for reasons given above, the Office Action does not make a prima facie case of obviousness and a rejection under 35 U.S.C. §103(a) is improper. For at least the same reasons, the rejection is improper for claims 23-28

which depend, directly or indirectly, on claim 22. Thus the rejection is improper for claim 27. In addition, claim 27 recites "a two-dimensional pointing device" and "processing the signal from said two-dimensional pointing device with said . . . signal from said linear touch input device" which is not shown by the combination of references.

Because the combination is not proper, and does not teach a "a linear touch input device . . . integrated with said keyboard" as required by claim 29, for reasons given above, the Office Action does not make a prima facie case of obviousness and a rejection under 35 U.S.C. §103(a) is improper. For at least the same reasons, the rejection is improper for claims 30-34 which depend, directly or indirectly, on claim 29. In addition, claim 34 recites "a two-dimensional pointing device" and "processing the signal from said two-dimensional pointing device with said . . . signal [indicating the position of contact along the strip of touch sensitive material]" which is not shown by the combination of references.

For the reasons given, it is submitted that the Examiner's rejection of claims 27 and 34 under 35 U.S.C. §103(a) as being unpatentable over Kawamoto in view of Bequaert and further in view of Smith is untenable. Accordingly, Appellants respectfully request reversal of the rejection.

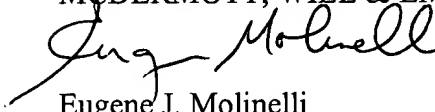
CONCLUSION

The Examiner has failed to show that that the independent claims are unpatentable for anticipation over the cited references and failed to make a prima facie case of obviousness against the dependent claims. Each of the claims contains limitations not shown or fairly suggested by the prior art, and each achieves benefits not found in the prior art. In addition, the Examiner has not established that the claims of this application differ only in an obvious manner from claims of the '629 patent.

Accordingly, Appellant respectfully requests that the Board of Patent Appeals and Interferences reverse the Examiner's rejections.

Respectfully submitted,

MCDERMOTT, WILL & EMERY

A handwritten signature in cursive script, appearing to read "Eugene J. Molinelli".

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APPENDIX

1. An input device for providing user controlled inputs, comprising:
a strip of touch-sensitive material sensitive to a range of pressure values, said strip having a substantially constant width and a length which is at least twice said width; and
an interface, connecting said strip to a computer and responsive to human contact with said strip in order to transpose the position and pressure value of said contact into a data signal and to output said data signal.
2. An input device according to claim 1, wherein said interface does not transpose the widthwise position of said contact and said data signal does not indicate the widthwise position of said contact.
4. An input device according to claim 1, wherein said substantially constant width is approximately the width of a human finger.
5. An input device according to claim 4, wherein said input device further comprises a number of keys or buttons and wherein said data signal also indicates the selection of one or more of said keys or buttons.
6. An input device according to claim 5, wherein said number of keys or buttons is four and wherein said keys or buttons are located on said linear touch input device in a position so as to be operable by the fingers of a hand while said strip of touch sensitive material is simultaneously touched by the thumb of the hand.
7. A keyboard having an integrated touch input device, said keyboard comprising;
a housing supporting a plurality of keys, said housing having a top face, a bottom face, and left and right edges; and

a first linear touch input device for providing user controlled inputs, said linear touch input device located adjacent to at least one of said left and right edges on said top face and comprising:

a strip of touch sensitive material, said strip having a substantially constant width and a length which is at least twice said width; and

an interface, connecting said strip to a computer and responsive to human contact with said strip in order to transpose the position of said contact into a data signal indicating the position of said contact along the length of said strip and to output said data signal.

8. A keyboard according to claim 7, wherein said interface does not transpose the widthwise position of said contact and said data signal does not indicate the widthwise position of said contact.

9. A keyboard according to claim 7, wherein said interface also transposes the pressure of said contact and said data signal also indicates the pressure of said contact.

10. A keyboard according to claim 7, wherein said substantially constant width is approximately the width of a human finger.

11. A keyboard according to claim 10, wherein said linear touch input device further comprises a number of touch keys or buttons and wherein said data signal also indicates the selection of one or more of said touch keys or buttons.

12. A keyboard according to claim 11, wherein said keys or buttons and said strip of touch sensitive material are located on said linear touch input device in a position so as to be operable by the fingers of a hand while said strip of touch sensitive material is simultaneously touched by the thumb of the hand.

13. A keyboard according to claim 12, wherein said strip of touch sensitive material is located on the top face of said housing and said touch keys or buttons are located on at least one of said left edge and said right edge of said housing.

14. A keyboard according to claim 12, wherein said strip of touch sensitive material is located on the top face of said housing and said touch keys or buttons are located on the bottom face of said housing.

15. A keyboard according to claim 12, wherein said strip of touch sensitive material is substantially straight.

16. A keyboard according to claim 12, wherein said strip of touch sensitive material is substantially arc shaped.

17. A keyboard according to claim 7, further comprising a second linear touch input device and wherein said first linear input device is located at or near said left edge of the keyboard and said second linear touch input device is located at or near said right edge of the keyboard.

22. A computer system comprising:

a computer bus;

a linear touch input device for providing user controlled inputs to said bus, said linear touch input device comprising:

a strip of touch sensitive material, said strip having a substantially constant width and a length which is at least twice said width, and

an interface, connecting said strip to said computer bus and responsive to human contact with said strip in order to transpose the position of said contact into an input data signal indicating the position of said contact along the length of said strip and to output said data signal to said computer bus; and

a processor configured to receive the input data signal from said linear touch input device and process information in accordance with said input data signal; and

a keyboard having a plurality of alphanumeric keys and outputting a keyboard signal indicating the selection of said alphanumeric keys by a user, said linear touch input device being integrated with said keyboard, and said processor performs processing of display data in response to said keyboard signal and said input data signal from said linear touch input device.

23. A computer system according to claim 22, wherein said computer system further comprises a display arranged to display said image display data under the control of said processor and said processor controls said image display data in accordance with said input data signal.

24. A computer system according to claim 23, wherein said processor controls scrolling of said display in accordance with said input data signal.

25. A computer system according to claim 22, wherein said image display data represents a text document and said computer system performs processing of said text document in accordance with said keyboard signal and display of said text document in accordance with said input data signal from said linear touch input device.

26. A computer system according to claim 23, wherein said computer system further comprises a pointing device and wherein said processor controls said image in accordance with said input data signal from said linear touch input device and a signal from said pointing device.

27. A computer system according to claim 26, wherein said pointing device comprises a two-dimensional pointing device and said processor processes the signal from said two-dimensional pointing device with said input data signal from said linear touch input device under the control of programming instructions to generate a three-dimensional input signal.

28. A computer system according to claim 22, wherein said computer system further comprises a network and one or more computers, each containing said linear touch input device, connected to said network.

29. A computer program product for implementing a method for providing user controlled inputs to a computer comprising:

a computer readable memory medium; and

a computer program including

a routine for, in response to human contact of a strip of touch sensitive material by hand, converting the position of said contact into a data signal indicating the position of said contact along the length of said strip; and

a routine for outputting said data signal to a bus of said computer, wherein said computer comprises a keyboard having a plurality of alphanumeric keys and outputting a keyboard signal indicating the selection of said alphanumeric keys by a user, said strip being integrated with said keyboard, and said processor performs processing of display data in accordance with said keyboard signal and said input data signal from said strip.

30. A computer program product according to claim 29, wherein said computer program is arranged to control the display of an image in accordance with said input data signal.

31. A computer program product according to claim 30, wherein said computer program controls scrolling of said display in accordance with said input data signal.

32. A computer program product according to claim 31, wherein said computer comprises a keyboard having a plurality of alphanumeric keys and outputting a keyboard signal indicating the selection of said alphanumeric keys by a user, said strip of touch sensitive material is integrated with said keyboard, and said computer program performs processing of a text document in accordance with said keyboard signal and to control a display of said text document in accordance with said input data signal.

33. A computer system according to claim 30, wherein said computer comprises a pointing device and wherein said computer program controls said image in accordance with said input data signal and a signal from said pointing device.

34. A computer system according to claim 33, wherein said pointing device comprises a two-dimensional pointing device and computer program includes a routine for processing the signal from said two-dimensional pointing device with said input data signal to generate a three-dimensional input signal.

35. A keyboard according to claim 7, wherein said linear touch sensitive material has a longitudinal direction and said longitudinal direction is substantially parallel to at least one said left and right edges.

-- 36. A keyboard according to claim 17 wherein said second linear touch input device used in conjunction with said first linear touch input device for generating a two-dimensional input signal.--

-- 37. A keyboard according to claim 11, wherein selection of said touch keys or buttons modifies a granularity of movement controlled by said strip of touch sensitive material.--

-- 38. An input device according to claim 1 further comprising a second strip of touch sensitive material, wherein said first and a second strips of touch sensitive material control input in one dimension.--

-- 39. An input device according to claim 38 wherein said first and second strips of touch sensitive material in combination control two-dimensional input.--

-- 40. An input device according to claim 38 wherein one of said first and second touch sensitive input strips controls granularity of the other of said first and second touch sensitive input strips.--

-- 41. An input device according to claim 38 further comprising at least one key that when activated simultaneous to activation of either touch sensitive input strip controls granularity of input.--

-- 42. An input device according to claim 38 further comprising at least one key that when activated simultaneous to activation of said first touch sensitive input strip controls selection of a function altered in one dimension by said first touch sensitive input strip.--